

Appl. No. 09/466,124
Amdmt. Dated July 3, 2007

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) An apparatus for controlling data unit communications between a plurality of mobile stations, each of the mobile stations having a respective maintained communication link with the apparatus that, once established, is maintained throughout a session, the apparatus comprising:

means for grouping at least two of the plurality of mobile stations as members of a private network group;

means for determining if a first mobile station sending a data unit and a second mobile station scheduled to receive the data unit are both members of the private network group; and

means for enabling communication of the data unit from the first mobile station to the second mobile station through the respective maintained communication links of the first mobile station and the second mobile station only if they are both members of the private network group.

2. (Previously presented) The apparatus according to claim 1, wherein each of the mobile stations has a corresponding Home Location Registration (HLR);

wherein the means for grouping at least two of the plurality of mobile stations as members of the private network group comprises means for listing the HLRs of the at least two mobile stations within a private network group table; and

wherein the means for determining if the first and second mobile stations are both members of the private network group comprises means for determining if the HLRs of the first and second mobile stations are both listed within the private network group table.

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3. (Previously presented) The apparatus according to claim 2, wherein each of the mobile stations further has a corresponding data address and the data unit includes a data address corresponding to a desired destination mobile station as a destination address;

wherein the means for grouping at least two of the plurality of mobile stations as members of a private network group further comprises means for listing the data addresses of the at least two mobile stations within the private network group table corresponding to their HLRs; and

wherein the means for determining if the first and second mobile stations are both members of the private network group further comprises means for determining the HLR of the second mobile station by looking-up the destination address of the data unit within the private network group table.

4. (Previously presented) The apparatus according to claim 3, wherein the data addresses are Internet Protocol (IP) addresses.

5. (Previously presented) The apparatus according to claim 1, wherein each of the mobile stations has a corresponding node registration;

wherein the means for grouping at least two of the plurality of mobile stations as members of a private network group comprises means for listing the node registrations of the at least two mobile stations within a private network group table; and

wherein the means for determining if the first and second mobile stations are both members of the private network group comprises means for determining if the node registrations of the first and second mobile stations are both listed within the private network group table.

6. (Currently amended) The apparatus according to claim 5, wherein the plurality of mobile stations comprises a first set of at least one mobile station within a first cell cluster and a second set of at least one mobile station within a second cell cluster, the node registrations corresponding to the mobile stations of the first set being respective Home Location

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Registrations (HLRs) and the node registrations corresponding to the mobile stations of the second set all being a data address corresponding to a second apparatus; and

wherein the apparatus for controlling data unit communications further comprises means for adding a header to the data unit if the apparatus determines that the first and second mobile stations are both members of the private network group and the second mobile station has a data address corresponding to the second apparatus as its node registration, the header comprising the data address corresponding to the second apparatus as a destination address.

7. (Previously presented) The apparatus according to claim 6, wherein the data address corresponding to the second apparatus is an Internet Protocol (IP) address.
8. (Previously presented) The apparatus according to claim 1 further comprising means for determining if the data unit is of a type requiring limited access, and means for enabling communication of the data unit from the first mobile station to the second mobile station if the data unit is not of the type requiring limited access, even if the first and second mobile stations are not both members of the private network group.
9. (Previously presented) The apparatus according to claim 1 further comprising means for sending a bandwidth request signal prior to enabling communication of the data unit if the second mobile station has insufficient bandwidth capabilities to receive the data unit on the respective maintained communication link of the second mobile station.
10. (Previously presented) The apparatus according to claim 1 further comprising means for sending an error signal to the first mobile station if the first and second mobile stations are not both members of the private network group.
11. (Previously presented) An apparatus for controlling data unit communications between a plurality of mobile stations, each of the mobile stations having a respective maintained communication link with the apparatus that, once established, is maintained throughout a session, the apparatus comprising:

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means for grouping at least two of the plurality of mobile stations as members of a private network group;

means for determining if a first mobile station sending a data unit and a second mobile station scheduled to receive the data unit are both members of the private network group; and

means for disabling communication of the data unit from the first mobile station to the second mobile station through the respective maintained communication links of the first mobile station and the second mobile station if they are not both members of the private network group.

12. (Currently amended) An apparatus for controlling data unit communications between a first set of at least one mobile telephone station and a second set of at least one fixed wire telephone station, [[the at least one mobile station]]each of the mobile telephone stations of said first set having a respective maintained communication link with the apparatus that, once established, is maintained throughout a session, the apparatus comprising:

means for grouping at least two telephone stations of [[the]]said first set of at least one mobile telephone station and [[the]]said second set of at least one fixed wire telephone station as members of a private network group, at least one of the at least two telephone stations being a mobile telephone station;

means for determining if a first telephone station sending a data unit and a second telephone station scheduled to receive the data unit are both members of the private network group; and

means for enabling communication of the data unit from the first telephone station to the second telephone station, through the respective maintained communication link of the first telephone station if the first telephone station is a mobile telephone station, [[and]] through the respective maintained communication link of the second telephone station if the second telephone station is a mobile telephone station, and through the respective maintained

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communication links of the first and second telephone stations if they are both mobile telephone stations, only if they are both members of the private network group.

13. (Currently amended) The apparatus according to claim 12, wherein each of the at least one mobile telephone station and the at least one fixed wire telephone station has a corresponding node registration;

wherein the means for grouping at least two telephone stations of [[the]]said first set of at least one mobile telephone station and [[the]]said second set of at least one fixed wire telephone station as members of a private network group comprises means for listing the node registrations of the at least two telephone stations within a private network group table; and

wherein the means for determining if the first and second telephone stations are both members of the private network group comprises means for determining if the node registrations of the first and second telephone stations are both listed within the private network group table.

14. (Currently amended) The apparatus according to claim 13, wherein the node registration for the at least one mobile telephone station of the first set is a Home Location Registration (HLR) corresponding to the at least one mobile telephone station of the first set.

15. (Currently amended) The apparatus according to claim 13, wherein the node registration for the at least one fixed wire telephone station of the second set is a data address corresponding to a second apparatus coupled to the at least one fixed wire telephone station.

16. (Previously presented) The apparatus according to claim 13, wherein the means for enabling communication of the data unit from the first telephone station to the second telephone station comprises means for attaching a header to the data unit, the header comprising a data address corresponding to a second apparatus coupled to the second telephone station as a destination address; and means for outputting a resulting data unit to a data network for routing.

17. (Previously presented) The apparatus according to claim 15, wherein the data address corresponding to the second apparatus is an Internet Protocol (IP) address.

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18. (Previously presented) The apparatus according to claim 16, wherein the second apparatus is a server coupled to a Local Area Network (LAN).

19. (Currently amended) The apparatus according to claim 13, wherein each of the at least one mobile telephone station and the at least one fixed wire telephone station further has a corresponding data address and the data unit includes a data address corresponding to a desired destination mobile station as a destination address;

wherein the means for grouping at least two telephone stations of [[the]]said first set of at least one mobile telephone station and [[the]]said second set of at least one fixed wire telephone station as members of a private network group further comprises means for listing the data addresses of the at least two telephone stations within the private network group table corresponding to their node registrations; and

wherein the means for determining if the first and second telephone stations are both members of the private network group further comprises means for determining the node registration of the second telephone station by looking-up the destination address of the data unit within the private network group table.

20. (Previously presented) The apparatus according to claim 19, wherein the data addresses are Internet Protocol (IP) addresses.

21. (Previously presented) The apparatus according to claim 12 further comprising means for determining if the data unit is of a type requiring limited access, and means for enabling communication of the data unit from the first telephone station to the second telephone station if the data unit is not of the type requiring limited access, even if the first and second telephone stations are not both members of the private network group.

22. (Currently amended) A private network comprising a data network, a plurality of apparatus coupled to the data network, and a plurality of sets of at least one telephone station which are arranged to maintain wireless communication links with a respective one of the apparatus that, once established, is maintained throughout a session;

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wherein each of the apparatus comprises means for grouping at least two telephone stations of the plurality of sets of at least one telephone station[[s]] as members of a private network group; means for determining if a first telephone station of the plurality of sets of at least one telephone station that maintains [[a communication link of the]]one of said communication links with a first one of the plurality of apparatus and is sending a data unit, and a second telephone station of the plurality of sets of at least one telephone station that maintains [[a communication link of the]]another one of said communication links with a second one of the plurality of apparatus and is scheduled to receive the data unit are both members of the private network group; and means for enabling communication of the data unit from the first telephone station, via the data network, to the second telephone station through the respective maintained communication links of the first telephone station and the second telephone station only if the first and second telephone stations are both members of the private network group.

23. (Previously presented) The private network according to claim 22, wherein each of the telephone stations within the private network group has a corresponding node registration;

wherein the means for grouping at least two of the plurality of telephone stations as members of a private network group comprises means for listing the node registrations of the at least two telephone stations within a private network group table; and

wherein the means for determining if the first and second telephone stations are both members of the private network group comprises means for determining if the node registrations of the first and second telephone stations are both listed within the private network group table.

24. (Previously presented) The private network according to claim 23, wherein first and second ones of the plurality of sets of at least one telephone station comprises first and second sets of mobile stations respectively that are located within respective first and second cell clusters, the first and second sets being coupled to the first and second ones of the plurality of apparatus;

wherein, within the first apparatus, the node registrations corresponding to the mobile stations of the first set are respective Home Location Registrations (HLRs) and the node

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29. (Previously presented) The wireless network according to claim 28, wherein the radio network controller comprises means for adjusting a bandwidth between each of the mobile stations and its respective one of the at least one base transceiver station.

30. (Currently amended) The wireless network according to claim 28 further comprising a mobile switching center [[coupled between]] in communication with the apparatus and the radio network controller, the mobile switching center comprising means for controlling the switching operations of the wireless network within a predefined cell cluster.

31. (Previously presented) The wireless network according to claim 28, wherein at least one of the mobile stations comprises a personal computer with a wireless modem.

32. (Previously presented) The wireless network according to claim 28, wherein at least one of the mobile stations comprises an interface apparatus arranged to be coupled to a digital data processing component and arranged to maintain a communication link with one of the at least one base transceiver station, the interface apparatus comprising:

an interface port comprising means for receiving digital data in a first format from the digital data processing component, means for converting the digital data from the first format to a second format, and means for outputting the digital data in the second format;

a computing device, coupled to the interface port, comprising means for receiving the digital data in the second format from the interface port; means for attaching a data unit overhead including source and destination addresses to the received digital data in order to generate the data unit, the source address being a predefined data address for the interface apparatus and the destination address being a stored data address; and means for outputting the data unit; and

a wireless network transceiver, coupled to the computing device, comprising means for receiving the data unit and means for transmitting it to the base transceiver station.

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33. (Currently amended) The interface apparatus according to claim 32, wherein the [[component]]interface port is a Universal Serial Bus (USB) port and the first format is a format required for transmitting the digital data over a USB cable.

34. (Currently amended) The wireless network according to claim 28, wherein at least one of the plurality of mobile stations comprises an interface apparatus arranged to be coupled to a digital data processing component and arranged to maintain a communication link with one of the at least one base transceiver station, the interface apparatus comprising:

a wireless network transceiver comprising means for receiving the data unit from the base transceiver station, with the data unit comprising digital data in a first format and a data unit overhead including source and destination addresses, the destination address being a predefined data address for the interface apparatus, and means for outputting the data unit;

a computing device, coupled to the wireless network transceiver, comprising means for receiving the data unit from the wireless network transceiver, means for removing the data unit overhead from the data unit, and means for outputting the digital data in the first format; and

an [[component]]interface port, coupled to the computing device, comprising means for receiving the digital data in the first format, means for converting the received digital data from the first format to a second format, and means for outputting the digital data in the second format to the digital data processing component.

35. (Currently amended) The interface apparatus according to claim 34, wherein the [[component]]interface port is a Universal Serial Bus (USB) port and the second format is a format required for transmitting the digital data over a USB cable.

36. (Currently amended) Within a network comprising a plurality of mobile stations that each have a respective maintained [[a]]communication link with a respective base transceiver station that, once established, is maintained throughout a session, a method of enabling communication of a data unit from a first mobile station of said plurality of mobile stations to a second mobile station of said plurality of mobile stations, the method comprising:

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registrations corresponding to the mobile stations of the second set are a data address corresponding to the second apparatus; and

wherein, within the second apparatus, the node registrations corresponding to the mobile stations of the second set are respective HLRs and the node registrations corresponding to the mobile stations of the first set are a data address corresponding to the first apparatus.

25. (Previously presented) The private network according to claim 22, wherein the means for enabling communication of the data unit from the first telephone station to the second telephone station comprises means for attaching a header to the data unit, the header comprising a data address corresponding to the second telephone station as a destination address; and means for outputting the resulting data unit to the data network for routing.

26. (Currently amended) The private network according to claim 22, wherein at least one of the plurality of apparatus is an intelligent peripheral [[coupled within]]in communication with a third generation wireless network.

27. (Previously presented) The private network according to claim 22, wherein at least one of the plurality of apparatus is a server coupled to a Local Area Network (LAN).

28. (Currently amended) A wireless network comprising an apparatus, a radio network controller coupled to the apparatus, at least one base transceiver station coupled to the radio network controller, and a plurality of mobile stations each having a respective maintained[[a]] communication link with one of the at least one base transceiver station that, once established, is maintained throughout a session;

wherein the apparatus comprises means for grouping at least two of the plurality of mobile stations as members of a private network group; means for determining if a first mobile station sending a data unit and a second mobile station scheduled to receive the data unit are both members of the private network group; and means for enabling communication of the data unit from the first mobile station to the second mobile station through the respective maintained communication links of the first mobile station and the second mobile station only if they are both members of the private network group.

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grouping at least two of the plurality of mobile stations as members of a private network group;

determining if the first mobile station sending the data unit and the second mobile station scheduled to receive the data unit are both members of the private network group; and

enabling communication of the data unit from the first mobile station to the second mobile station through the respective maintained communication links of the first mobile station and the second mobile station only if they are both members of the private network group.

37. (Currently amended) The method according to claim 36, wherein:

each of the mobile stations has a corresponding Home Locations Registration (HLR)[[,]];

the grouping of at [[last]]least two of the plurality of mobile stations as members of a private network group [[comprising]]comprises listing the HLRs of the at least two mobile stations within a private network group table; and

the determining if the first and second mobile stations are both members of the private network group [[comprising]]comprises determining if the HLRs of the first and second mobile stations are both listed within the private network group table.

38. (Currently amended) The method according to claim 36, wherein:

each of the mobile stations has a corresponding node registration;

the grouping of at least two of the plurality of mobile stations as members of a private network group [[comprising]]comprises listing the node registrations of the at least two mobile stations within a private network group table; and

the determining if the first and second mobile stations are both members of the private network group [[comprising]]comprises determining if the node registrations of the first and second mobile stations are both listed within the private network group table.

39. (Currently amended) The method according to claim 36, further comprising:

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determining if the data unit is of a type requiring limited access; and

enabling communication of the data unit from the first mobile station to the second mobile station if the data unit is not of the type requiring limited access, even if the first and second mobile stations are not both members of the private network group.

40. (Previously presented) A method for controlling data unit communications between a plurality of mobile stations in a network comprising:

enabling grouping of at least two of the plurality of mobile stations as members of a private network group;

enabling determination of whether a first mobile station and a second mobile station are members of the private network group; and

enabling communication of data units from the first mobile station to the second mobile station through a maintained communication link between the first mobile station and the second mobile station that, once established, is maintained throughout a session.

41. (Currently amended) The method according to claim 40, wherein:

each of the mobile stations has a corresponding Home Location Registration (HLR)_i;

the enabling grouping of at least two of the plurality of mobile stations as members of a private network group ~~[[comprising]]~~ comprises enabling listing of the HLRs of the at least two mobile stations within a private network group table; and

the enabling determination of whether a first mobile station and a second mobile station are members of the private network group ~~[[comprising]]~~ comprises enabling determination of whether the HLRs of the first and second mobile stations are both listed within the private network group table.

42. (Currently amended) The method according to claim 40, wherein:

each of the mobile stations has a corresponding node registration;

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the enabling grouping of at least two of the plurality of mobile stations as members of a private network group ~~[[comprising]]~~ comprises enabling listing of the node registrations of the at least two mobile stations within a private network group table; and

the enabling determination of whether a first mobile station and a second mobile station are members of the private network group ~~[[comprising]]~~ comprises enabling determination of whether the node registration of the first and second mobile stations are both listed within the private network group table.

43. (Currently amended) The method according to claim 40, further comprising:

enabling determination of whether the data unit is of a type requiring limited access; and

enabling communication of the data unit from the first mobile station to the second mobile station if the data unit is not of the type requiring limited access, even if the first and second mobile stations are not both members of the private network group.

44. (New) An apparatus for controlling data packet communications between a plurality of mobile stations, the apparatus comprising:

means for establishing a private network by establishing a respective maintained communication link between the apparatus and each of the mobile stations that, once established, is maintained throughout a session;

means for receiving data packets from members of the private network group, each packet having a source and a destination; and

means for enabling communication that for each packet received:

determines if the source and destination both belong to the private network; and

forwards the packet to the destination only if the source and destination

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both belong to the private network.

45. (New) An apparatus for controlling data unit communication in a private network group comprising a plurality of mobile stations, mobile stations of said plurality maintaining respective communication links with the apparatus throughout a session, the apparatus comprising:

a private network group manager that groups at least two mobile stations of the plurality as members of the private network group;

a private network group identifier that determines if a first mobile station sending a data unit and a second mobile station scheduled to receive the data unit are both members of the private network group; and

a communication controller that enables communication of the data unit from the first mobile station to the second mobile station through the respective maintained communication links of the first mobile station and the second mobile station only if they are both members of the private network group.

46. (New) The apparatus according to claim 45, wherein the respective maintained communication links of the members of the private network comprise variable bandwidth communication links.

47. (New) The apparatus according to claim 45, wherein:

each of the mobile stations of the plurality of mobile stations has a corresponding Home Location Registration (HLR);

the private network group manager lists the HLRs of the at least two mobile stations within a private network group table in order to group the at least two mobile stations of the plurality of mobile stations as members of the private network group; and

the private network group identifier determines if the HLRs of the first and second mobile stations are both listed within the private network group table to determine if the first and second mobile stations are both members of the private network group.

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48. (New) The apparatus according to claim 47, wherein:

each of the mobile stations further has a corresponding data address and the data unit includes a data address corresponding to a desired destination mobile station as a destination address;

the private network group manager lists the data addresses of the at least two mobile stations within the private network group table corresponding to their HLRs; and

the private network group identifier determines the HLR of the second mobile station by looking-up the destination address of the data unit within the private network group table.

49. (New) The apparatus according to claim 48, wherein the data addresses are Internet Protocol (IP) addresses.

50. (New) The apparatus according to claim 45, wherein:

each of the mobile stations has a corresponding node registration;

the private network group manager lists the node registrations of the at least two mobile stations within a private network group table in order to group the at least two mobile stations as members of the private network group; and

the private network group identifier determines if the node registrations of the first and second mobile stations are both listed within the private network group table to determine if the first and second mobile stations are both members of the private network group.

51. (New) The apparatus according to claim 50, wherein the plurality of mobile stations comprises a first set of at least one mobile station within a first cell cluster and a second set of at least one mobile station within a second cell cluster, the node registrations corresponding to the mobile stations of the first set being respective Home Location Registrations (HLRs) and the node registrations corresponding to the mobile stations of the second set all being a data address corresponding to a second apparatus; and

wherein the apparatus for controlling data unit communications further comprises

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a data unit processor that adds a header to the data unit if the private network group identifier determines that the first and second mobile stations are both members of the private network group and the second mobile station has a data address corresponding to the second apparatus as its node registration, the header comprising the data address corresponding to the second apparatus as a destination address.

52. (New) The apparatus according to claim 51, wherein the data address corresponding to the second apparatus is an Internet Protocol (IP) address.

53. (New) The apparatus according to claim 45, further comprising:

a data unit processor that determines if the data unit is of a type requiring limited access, wherein

the communication controller enables communication of the data unit from the first mobile station to the second mobile station if the data unit is not of the type requiring limited access, even if the first and second mobile stations are not both members of the private network group.

54. (New) The apparatus according to claim 45, wherein the communication controller sends a bandwidth request signal prior to enabling communication of the data unit if the second mobile station has insufficient bandwidth capabilities to receive the data unit on the respective maintained communication link of the second mobile station.

55. (New) The apparatus according to claim 45, further comprising an error signaller that sends an error signal to the first mobile station if the first and second mobile stations are not both members of the private network group.